

Accelerated Site Deployment of the Personal Ice Cooling System (PICS)

PICS is a type of PPE that provides portable, personal cooling and protects workers from heat stress. PICS is lightweight and comfortable. The cooling source can be changed w/o “doffing” PPE. The cooling process of the PICS vest is illustrated.



- Water is chilled by a pre-frozen ice bottle
- Pumped thru a network of tubing in the vest
- Cold water absorbs body heat conductively
- Water returns to the ice bottle for re-chilling
- User controls the cooling rate
- A filter protects the tubing from plugging

Application: New to the DOE weapons complex, but used in the commercial sector:

- | | |
|------------------------|------------------|
| - pulp & paper mills | - steel mills |
| - chemical plants | - foundries |
| - defense applications | - nuclear plants |

Benefits: “Clear-cut” advantages in productivity, health, safety and reliability



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Other Site Needs Supported:

- **Chicago - CH-DD04-99 = Improved Worker Protection Equipment**
- **Rocky Flats - RF-DD08 = Improved Worker Protective Clothing and Systems**
- **Savannah River - SR-99-4016 = Health and Safety Technologies**

Proposed Project Schedule

Draft ASTD PICS DP and TTP due

Revise DP and Re-submit to DOE

Receive PICS ASTD FY99 Funding

Distribute of PICS to other DOE Sites

PICS Project Execution

PICS Utilized by DOE Work Force (to closure)

Collect and Report Data

PICS ASTD Final Report Completed

Planned Completion

1/29/99 (completed)

2/19/99 (completed)

3/19/99 (completed)

6/30/99

1/18/99 to 9/30/00

5/28/99

5/28/99 to 9/30/00

9/30/00

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Estimated Cost Savings by Deploying PICS at Fernald

- \$47/crew-hr (work area temperatures between 70 and 85 degrees)
 - \$159/crew-hr (work area temperatures above 85 degrees)
 - Yearly estimated savings per worker of \$7,742
 - Annual cost savings of \$387,100 based on a project with 50 workers using PICS
 - Lifetime (5 years) savings ~ \$1,935,500
 - ASTD Project Cost is \$500,000
- ROI = 3.9 to 1**

Current Status

- ASTD initiated in March 99
- Heat stress a “pressing” need at all DOE sites
- Scheduled to deploy/train at NTS, Hanford, OR, SRS and ANL

Points of Contact

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